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Breast prosthesis infection and pets: A case report and review of the literature

A. Lenne^{a,*}, L. Defourny^b, A. Lafosse^c, M. Martin^d, B. Vandercam^e, M. Berlière^d, B. Lengelé^f, H. Rodriguez-Villalobos^b^a Plastic and Reconstructive Surgery Department, Cliniques universitaires St-Luc avenue Hippocrate, 10 1200 Brussels, Belgium^b Clinical Microbiology Department, Cliniques universitaires St-Luc avenue Hippocrate, 10 1200 Brussels, Belgium^c Plastic and Reconstructive Surgery Department, Clinique Saint-Anne Saint-Rémi Chirec boulevard Jules Graindor, 66 1070 Brussels, Belgium^d Gynecology Department, Cliniques universitaires St-Luc avenue Hippocrate, 10 1200 Brussels, Belgium^e Infectious Diseases Department, Cliniques universitaires St-Luc avenue Hippocrate, 10 1200 Brussels, Belgium^f Plastic and Reconstructive Department, Cliniques universitaires St-Luc avenue Hippocrate, 10 1200 Brussels, Belgium

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ABSTRACT

INTRODUCTION: Pets are not always the human's best friends, particularly in the presence of comorbidities such as wounds. The following case report describes a *Pasteurella multocida* infection of a reconstructive breast implant due to a close contact between a cat and its owner.

PRESENTATION OF CASE: A 33-year-old woman developed a breast implant infection 13 days after an immediate breast reconstruction following a mastectomy for a multifocal ductal carcinoma. The wound was explored surgically and the implant removed. Culture extracted from fluid around the prosthesis evidenced the presence of *P. multocida*, a Gram-negative coccobacillus which is present in the oral commensal flora of cats and dogs.

CONCLUSION: In the case of breast infection, surgical revision – with or without removal of the implant – is required in order to carry out a meticulous intraoperative cleaning. Antibiotherapy is always necessary in such cases. Particularly when patients presenting comorbidities are concerned, the focus must be put on avoiding close contact of the wound with pets.

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A 33-year-old woman underwent a right mastectomy for a multifocal ductal carcinoma, which had previously been treated by chemotherapy (Taxotere-Endoxan-Herceptin). An immediate breast reconstruction was performed using a silicone gel-filled prosthesis covered with a decellularized fascia lata from the tissue bank. She received cefazolin (2 g) as antibiotic prophylaxis during the operation, followed by cefadroxil (1.5 g/day) for six days following the operation. She was discharged after five days with a drain in place. After 12 days, the drain was removed.

Thirteen days after having been operated, she developed acute (the symptoms appeared within a few hours) fever (38.5 °C), pain, swelling and erythema of the right breast, after which she was admitted to the emergency room. Upon admission, laboratory investigations revealed elevated concentrations of white blood cells (WBC) of 25×10^3 cells/ μ L (the normal value being 4×10^3 – 10×10^3 cells/ μ L) and C-reactive protein (CRP) of 282 mg/L (normal value <5 mg/L). Blood samples were taken in order to grow

aerobic and anaerobic microbiological cultures. The clinical examination revealed a painful, warm and fluctuant area of 10 cm × 12 cm in the right breast while ruling out other possible origin of infection (Fig. 1). Six hours later, the infected implant was removed. The prosthetic pocket was extensively cleaned and irrigated with saline in order to remove all the infected tissue (Fig. 2). Tissue from the fascia lata and fluid from the area around the prosthesis were sent for further bacteriological investigations. The breast implant could not be saved due to the major inflammatory syndrome, the high quantity of pus and the lack of fascia lata coverage in the lower pole, once the implant had been removed. Empirical therapy by intravenous amoxicillin-clavulanate was initiated (4 g/day). The tissue and pus Gram-staining revealed the presence of polymorphonuclears but no organism. On day 2, the culture obtained from the fascia lata and from the fluid around the prosthesis evidenced pure growth of *Pasteurella multocida*. The blood cultures were negative. On day 5, the patient felt better and signs of inflammation in the right breast had receded. Thereupon, the patient was discharged on oral ciprofloxacin treatment (1 g/day during 14 days). Eight days later, she came back for a medical consultation and at that time she was in an asymptomatic state, with normal WBC and CRP values.

* Corresponding author at: Cliniques universitaires, St-Luc, Avenue Hippocrate 10, 1200 Brussels, Belgium.

E-mail address: antoine.lenne@uclouvain.be (A. Lenne).



Fig. 1. Swelling and erythema of the right breast.

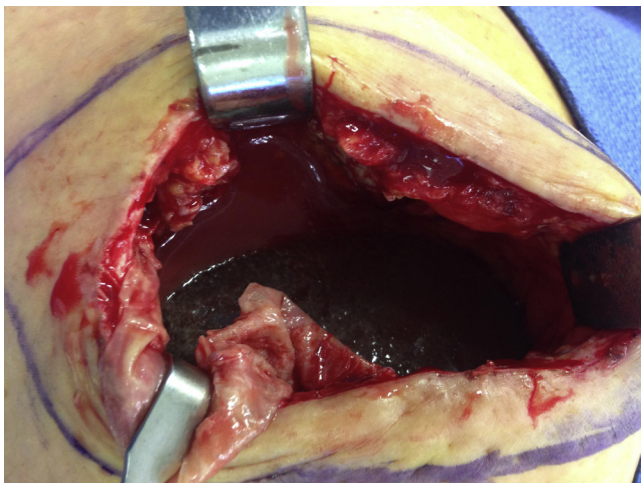


Fig. 2. Suppurative fluid around the infected prosthesis.

When cultures became positive for *Pasteurella multocida*, our patient was questioned again and she explained that, a few days before she developed the first symptoms, her cat had scratched her near the drain. Previously, only three cases of breast prosthesis infection caused by *P. multocida* had been reported by relevant literature [1–3]. In all cases, the women lived with dogs (one case) or cats (two cases). Mathieu et al., exactly as in our case, reported that the tissue expander was removed directly. However, contrary to our case, Martinez et al. were able to save the implant thanks to meticulous intraoperative lavage. In the case reported by Johnson et al., the patient was initially treated with amoxicillin-clavulanate for ten days. However, several weeks later, the breast implant had to be

removed because breast swelling returned. *P. multocida* is a Gram-negative coccobacillus which is found in the oral commensal flora of cats and dogs. This organism is a very rare cause of prosthetic infection and mostly occurs in patients with underlying comorbidities. Until now, the majority of the cases described have been prosthetic joint infections (PJI) [4]. All cases were related to close contact with pets (cats and dogs) and were more frequently associated with cats, probably due to a higher colonization rate of *P. multocida* in that species. Ferguson et al. reported that in 13/22 cases of PJI, implant removal was performed. In 4/13 cases, failures occurred during treatment so a subsequent revision was required as a follow-up. 9/22 implants were saved by administration of antibiotics and use of a washout. Animal strains of *P. multocida* can produce biofilms in vitro but the association of biofilm production with the clinical failure of conservative treatment in vivo has not been proven yet. A surgical revision is deemed to be necessary, either to rescue the prosthesis with lavages or to remove the implant. Early diagnosis is essential to avoid more damage, and in some instances can help to rescue an implant.

Our case underlines the causal relationship between *P. multocida* and breast prosthesis infection, and emphasizes the importance of avoiding close contact between the wound and pets, particularly in the case of patients presenting comorbidities such as cancer previously treated with chemotherapy. Adequate hygienic measures after every contact with pets are required. Patients' awareness of the risk of zoonotic infections in the postoperative period must be raised, and they have to be informed about the importance of keeping the wound dressings clean.

Conflicts of interest

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Consent

The patient provided written consent for the use of her image. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Lenne A. : author and corresponding author.
 Defourny L.: author.
 Lafosse A.: proof reader.
 Martin M.: proof reader.
 Berliere M.: proof reader.
 Vandercam B.: proof reader.
 Lengele B.: proof reader.
 Rodriguez-Villalobos H.: author, proof reader, corrector.

Guarantor

Lenne Antoine M.D.
 Plastic and Reconstructive Department, Cliniques Universitaires, Saint-luc, Brussels, Belgium, antoine.lenne@uclouvain.be.

Disclosure

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